General data

Overview

The advantages of the SIRIUS soft starters at a glance:

- Soft starting and smooth ramp-down[1)]
- Stepless starting
- Reduction of current peaks
- Avoidance of mains voltage fluctuations during starting
- Reduced load on the power supply network
- Reduction of the mechanical load in the operating mechanism
- Considerable space savings and reduced wiring compared with conventional starters
- Maintenance-free switching
- Very easy handling
- Fits perfectly in the SIRIUS modular system




		SIRIUS 3RW30 Standard applications	SIRIUS 3RW40 Standard applications	SIRIUS 3RW44 High-Feature applications
Rated current up to 40 °C	A	3 ... 106	12.5 ... 432	29 ... 1214
Rated operational voltage	V	200 ... 480	200 ... 600	200 ... 690
Motor rating at 400 V				
• Inline circuit	kW	1.5 ... 55	5.5 ... 250	15 ... 710
• Inside-delta circuit	kW	--	--	22 ... 1200
Ambient temperature	°C	-25 ... +60	-25 ... +60	0 ... +60
Soft starting/ramp-down		✔[1)]	✔	✔
Voltage ramp		✔	✔	✔
Starting/stopping voltage	%	40 ... 100	40 ... 100	20 ... 100
Starting and ramp-down time	s	0 ... 20	0 ... 20	1 ... 360
Torque control		--	--	✔
Starting/stopping torque	%	--	--	20 ... 100
Torque limit	%	--	--	20 ... 200
Ramp time	s	--	--	1 ... 360
Integral bypass contact system		✔	✔	✔
Intrinsic device protection		--	✔	✔
Motor overload protection		--	✔	✔
Thermistor motor protection		--	✔[2)]	✔
Integrated remote RESET		--	✔[3)]	✔
Adjustable current limiting		--	✔	✔
Inside-delta circuit		--	--	✔
Breakaway pulse		--	--	✔
Creep speed in both directions of rotation		--	--	✔
Pump ramp-down		--	--	✔[4)]
DC braking		--	--	✔[4) 5)]
Combined braking		--	--	✔[4) 5)]
Motor heating		--	--	✔
Communication		--	--	With PROFIBUS DP (optional)
External display and operator module		--	--	(optional)
Operating measured value display		--	--	✔
Error logbook		--	--	✔
Event list		--	--	✔
Slave pointer function		--	--	✔
Trace function		--	--	✔[6)]
Programmable control inputs and outputs		--	--	✔
Number of parameter sets		1	1	3
Parameterization software (Soft Starter ES)		--	--	✔
Power semiconductors (thyristors)		2 controlled phases	2 controlled phases	3 controlled phases
Screw terminals		✔	✔	✔
Spring-type terminals		✔	✔	✔
UL/CSA		✔	✔	✔
CE marking		✔	✔	✔
Soft starting under heavy starting conditions		--	--	✔[4)]
Configuring support		Win-Soft Starter, electronic selection slider ruler, Technical Assistance Tel.: +49 (0)911 895 5900		

✔ Function is available; -- Function is not available.

1) Only soft starting available for 3RW30.
2) Optional up to size S3 (device variant).
3) Available for 3RW40 2. to 3RW40 4.; optional for 3RW40 5. and 3RW40 7..
4) Calculate soft starter and motor with size allowance where required.
5) Not possible in inside-delta circuit.
6) Trace function with Soft Starter ES software.

You can find further information on the Internet at:
http://www.siemens.com/softstarter

Overview

The SIRIUS 3RW30 soft starters reduce the motor voltage through variable phase control and increase it in ramp-like mode from a selectable starting voltage up to mains voltage. During starting, these devices limit the torque as well as the current and prevent the shocks which arise during direct starts or wye-delta starts. In this way, mechanical loads and mains voltage dips can be reliably reduced.

Soft starting reduces the stress on the connected equipment and results in lower wear and therefore longer periods of trouble-free production. The selectable start value means that the soft starters can be adjusted individually to the requirements of the application in question and unlike wye-delta starters are not restricted to two-stage starting with fixed voltage ratios.

The SIRIUS 3RW30 soft starters are characterized above all by their small space requirements. Integrated bypass contacts mean that no power loss has to be taken into the bargain at the power semiconductors (thyristors) after the motor has started up. This cuts down on heat losses, enabling a more compact design and making external bypass circuits superfluous.

Various versions of the SIRIUS 3RW30 soft starters are available:

- Standard version for fixed-speed three-phase motors, sizes S00, S0, S2 and S3, with integrated bypass contact system
- Version for fixed-speed three-phase motors in a 22.5 mm enclosure without bypass

Soft starters rated up to 55 kW (at 400 V) for standard applications in three-phase networks are available. Extremely small sizes, low power losses and simple start-up are just three of the many advantages of this soft starter.

Application

The 3RW30 soft starters are suitable for soft starting of three-phase asynchronous motors.

Due to two-phase control, the current is kept at minimum values in all three phases throughout the entire starting time. Due to continuous voltage influencing, current and torque peaks, which are unavoidable in the case of wye-delta starters, for instance, do not occur.

Application areas

- Pumps
- Heat pumps
- Hydraulic pumps
- Presses
- Conveyors
- Roller conveyor
- Screw conveyors

3RW30
for standard applications

Selection and ordering data


3RW30 18-1BB14


3RW30 28-1BB14


3RW30 38-1BB14


3RW30 47-1BB14


3RW30 03-2CB54

Ambient temperature 40 °C				Ambient temperature 50 °C					Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Rated operational current I_e [1]	Rated power of induction motors for rated operational voltage U_e			Rated operational current I_e [1]	Rated power of induction motors for rated operational voltage U_e											
	230 V	400 V	500 V		200 V	230 V	460 V	575 V								
A	kW	kW	kW	A	hp	hp	hp	hp								
Rated operational voltage U_e 200 ... 480 V [2]																
• With screw terminals																
3.6	0.75	**1.5**	--	3	0.5	0.5	**1.5**	--	**S00**	▶	**3RW30 13-1BB□4**		1	1 unit	131	0.580
6.5	1.5	**3**	--	4.8	1	1	**3**	--	**S00**	▶	**3RW30 14-1BB□4**		1	1 unit	131	0.580
9	2.2	**4**	--	7.8	2	2	**5**	--	**S00**	▶	**3RW30 16-1BB□4**		1	1 unit	131	0.580
12.5	3	**5.5**	--	11	3	3	**7.5**	--	**S00**	▶	**3RW30 17-1BB□4**		1	1 unit	131	0.580
17.6	4	**7.5**	--	17	3	3	**10**	--	**S00**	▶	**3RW30 18-1BB□4**		1	1 unit	131	0.580
• With spring-type terminals																
3.6	0.75	**1.5**	--	3	0.5	0.5	**1.5**	--	**S00**	B	**3RW30 13-2BB□4**		1	1 unit	131	0.580
6.5	1.5	**3**	--	4.8	1	1	**3**	--	**S00**	B	**3RW30 14-2BB□4**		1	1 unit	131	0.580
9	2.2	**4**	--	7.8	2	2	**5**	--	**S00**	B	**3RW30 16-2BB□4**		1	1 unit	131	0.580
12.5	3	**5.5**	--	11	3	3	**7.5**	--	**S00**	B	**3RW30 17-2BB□4**		1	1 unit	131	0.580
17.6	4	**7.5**	--	17	3	3	**10**	--	**S00**	B	**3RW30 18-2BB□4**		1	1 unit	131	0.580
• With screw terminals																
25	5.5	**11**	--	23	5	5	**15**	--	**S0**	▶	**3RW30 26-1BB□4**		1	1 unit	131	0.690
32	7.5	**15**	--	29	7.5	7.5	**20**	--	**S0**	▶	**3RW30 27-1BB□4**		1	1 unit	131	0.690
38	11	**18.5**	--	34	10	10	**25**	--	**S0**	▶	**3RW30 28-1BB□4**		1	1 unit	131	0.690
• With spring-type terminals																
25	5.5	**11**	--	23	5	5	**15**	--	**S0**	B	**3RW30 26-2BB□4**		1	1 unit	131	0.690
32	7.5	**15**	--	29	7.5	7.5	**20**	--	**S0**	B	**3RW30 27-2BB□4**		1	1 unit	131	0.690
38	11	**18.5**	--	34	10	10	**25**	--	**S0**	B	**3RW30 28-2BB□4**		1	1 unit	131	0.690
• With screw-type or spring-type terminals																
45	11	**22**	--	42	10	15	**30**	--	**S2**	▶	**3RW30 36-□BB□4**		1	1 unit	131	1.200
63	18.5	**30**	--	58	15	20	**40**	--	**S2**	▶	**3RW30 37-□BB□4**		1	1 unit	131	1.200
72	22	**37**	--	62	20	20	**40**	--	**S2**	▶	**3RW30 38-□BB□4**		1	1 unit	131	1.200
• With screw-type or spring-type terminals																
80	22	**45**	--	73	20	25	**50**	--	**S3**	▶	**3RW30 46-□BB□4**		1	1 unit	131	1.710
106	30	**55**	--	98	30	30	**75**	--	**S3**	▶	**3RW30 47-□BB□4**		1	1 unit	131	1.710
Order No. supplement for connection types																
• With screw terminals											**1**					
• With spring-type terminals [3]											**2**					
Order No. supplement for rated control supply voltage U_s																
• 24 V AC/DC												**0**				
• 110 ... 230 V												**1**				
Soft starters for easy starting conditions and high switching frequency, rated operational voltage U_e 200 ... 400 V, rated control supply voltage U_s 24 ... 230 V AC/DC																
3	0.55	**1.1**	--	2.6	0.5	**0.5**	--	--	22.5 mm							
• With screw terminals										▶	**3RW30 03-1CB54**		1	1 unit	131	0.207
• With spring-type terminals										A	**3RW30 03-2CB54**		1	1 unit	131	0.188

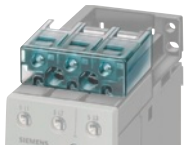
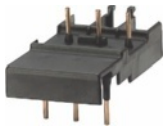
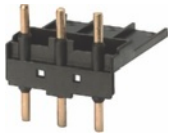
1) Stand-alone installation.
2) Soft starter with screw terminals: delivery times ▶ (preferred type).
3) Main circuit connection: screw terminals.

Note:
Selection of the soft starter depends on the rated motor current.

The SIRIUS 3RW30 solid-state soft starters are designed for easy starting conditions. $J_{Load} < 10 \times J_{Motor}$. In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger device.
Siemens recommends the use of the selection and simulation program Win-Soft Starter. For information about rated currents for ambient temperatures > 40 °C, see technical specifications.

*** You can order this quantity or a multiple thereof.**

Accessories

	For soft starters Type	Size	Motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Auxiliary terminals										
	Auxiliary terminals, 3-pole									
	3RW30 4.	**S3**		B	**3RT19 46-4F**		1	1 unit	101	0.035
Covers for soft starters										
	**Terminal covers for box terminals** Additional touch protection to be fitted at the box terminals (2 units required per device)									
	3RW30 3.	**S2**		►	**3RT19 36-4EA2**		1	1 unit	101	0.020
	3RW30 4.	**S3**		►	**3RT19 46-4EA2**		1	1 unit	101	0.025
	**Terminal covers for cable lugs and busbar connections** For complying with the phase clearances and as touch protection if box terminal is removed (2 units required per contactor)									
	3RW30 4.	**S3**		►	**3RT19 46-4EA1**		1	1 unit	101	0.040
Link modules to motor starter protectors										
	3RW30 13, 3RW30 14, 3RW30 16, 3RW30 17, 3RW30 18	**S00**	**S0**	►	**3RA19 21-1A**		1	10 units	101	0.028
	3RW30 26	**S0**	**S0**	►	**3RA19 21-1A**		1	10 units	101	0.028
	3RW30 36	**S2**	**S2**	►	**3RA19 31-1A**		1	5 units	101	0.033
	3RW30 46, 3RW30 47	**S3**	**S3**	►	**3RA19 41-1A**		1	5 units	101	0.072
Operating instructions[1]										
	For soft starters									
	3RW30 1. 3RW30 2. 3RW30 3. 3RW30 4.	**S00** **S0** **S2** **S3**			**3ZX10 12-0RW30-2DA1**					

[1] The operating instructions are included in the scope of supply.

	Version	Functionality Functions	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Covers and push-in lugs (only for 3RW30 03)									
 3RP1 902	**Sealable covers**	For securing against unauthorized adjustment of setting knobs	►	**3RP1 902**		1	5 units	101	0.004
 3RP1 903	**Push-in lugs** For screw fixing		►	**3RP1 903**		1	10 units	101	0.002

* You can order this quantity or a multiple thereof.

More information

Application examples for normal starting (Class 10)

Normal starting Class 10 (up to 20 s with 300 % $I_{n\ motor}$),
The soft starter rating can be selected to be as high as the rating of the motor used.

Application		Conveyor belt	Roller conveyor	Compressor	Small fan	Pump	Hydraulic pump
Starting parameters							
• Voltage ramp and current limiting							
- Starting voltage	%	70	60	50	40	40	40
- Starting time	s	10	10	20	20	10	10

Note:
These tables present sample set values and device sizes. They are intended only for the purposes of information and are not binding. The set values depend on the application in question and must be optimized during start-up.
The soft starter dimensions should be checked where necessary with the Win-Soft Starter software or with the help of Technical Assistance.

Configuration

The 3RW solid-state motor controllers are designed for easy starting conditions. In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger device. For accurate dimensioning, use the Win-Soft Starter selection and simulation program.

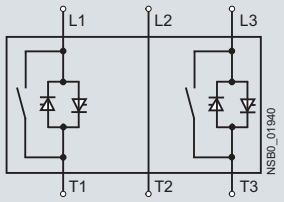
If necessary, an overload relay for heavy starting must be selected where long starting times are involved. PTC sensors are recommended.

In the motor feeder between the SIRIUS 3RW soft starter and the motor, no capacitive elements are permitted (e. g. no reactive-power compensation equipment). In addition, neither static systems for reactive-power compensation nor dynamic PFC (Power Factor Correction) must be operated in parallel during starting and ramp-down of the soft starter. This is important to prevent faults arising on the compensation equipment and/or the soft starter.

All elements of the main circuit (such as fuses, controls and overload relays) should be dimensioned for direct starting, following the local short-circuit conditions. Fuses, controls and overload relays must be ordered separately. Please observe the maximum switching frequencies specified in the technical specifications.

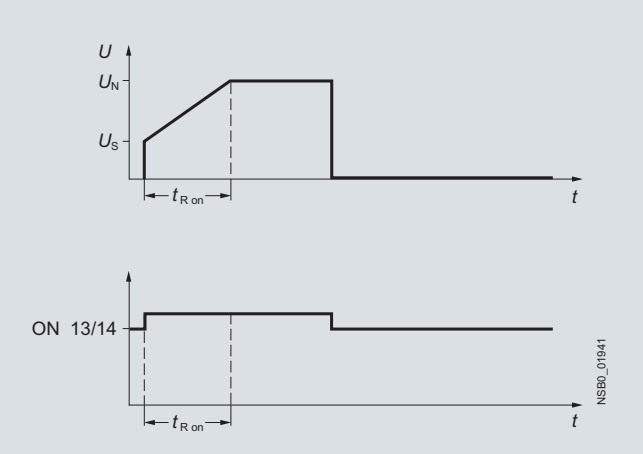
Note:
When induction motors are switched on, voltage drops normally appear on starters of all types (direct starters, wye-delta starters, soft starters). The infeed transformer must always be dimensioned such that the voltage dip when starting the motor remains within the permissible tolerance. If the infeed transformer is dimensioned with only a small margin, it is best for the control voltage to be supplied from a separate circuit (independently of the main voltage) in order to avoid the potential switching off of the soft starter.

Power electronics schematic circuit diagram



A bypass contact system is already integrated in the 3RW30 soft starter and therefore does not have to be ordered separately.

Status graphs



Win-Soft Starter selection and simulation program

With this software, you can simulate and select all Siemens soft starters, taking into account various parameters such as mains properties, motor and load data, and special application requirements.

The software is a valuable tool, which makes complicated, lengthy manual calculations for determining the required soft starters superfluous.

The Win-Soft Starter selection and simulation program can be downloaded from:
http://www.siemens.de/sanftstarter > Software

More information can be found on the Internet at:
http://www.siemens.de/sanftstarter

Overview

SIRIUS 3RW40 soft starters have all the same advantages as the 3RW30 soft starters.

The SIRIUS 3RW40 soft starters are characterized above all by their small space requirements. Integrated bypass contacts mean that no power loss has to be taken into the bargain at the power semiconductors (thyristors) after the motor has started up. This cuts down on heat losses, enabling a more compact design and making external bypass circuits superfluous.

At the same time this soft starter comes with additional integrated functions such as adjustable current limiting, motor overload and intrinsic device protection, and optional thermistor motor protection. The higher the motor rating, the more important these functions because they make it unnecessary to purchase and install protection equipment such as overload relays.

Internal intrinsic device protection prevents the thermal overloading of the thyristors and the power section defects this can cause. As an option the thyristors can also be protected by semiconductor fuses from short-circuiting.

Thanks to integrated status monitoring and fault monitoring, this compact soft starter offers many different diagnostics options. Up to four LEDs and relay outputs permit differentiated monitoring and diagnostics of the operating mechanism by indicating the operating state as well as for example mains or phase failure, missing load, non-permissible tripping time/class setting, thermal overloading or device faults.

Soft starters rated up to 250 kW (at 400 V) for standard applications in three-phase networks are available. Extremely small sizes, low power losses and simple start-up are just three of the many advantages of the SIRIUS 3RW40 soft starters.

"Increased safety" type of protection EEx e according to ATEX directive 94/9/EC

The 3RW40 soft starter sizes S0 to S12 are suitable for the starting of explosion-proof motors with "increased safety" type of protection EEx e.
See "Appendix" –> "Standards and approvals" –> "Type overview of approved devices for potentially explosive areas (ATEX explosion protection)".

Application

The SIRIUS 3RW40 solid-state soft starters are suitable for soft starting and stopping of three-phase asynchronous motors.

Due to two-phase control, the current is kept at minimum values in all three phases throughout the entire starting time and disturbing direct current components are eliminated in addition. This not only enables the two-phase starting of motors up to 250 kW (at 400 V) but also avoids the current and torque peaks which occur e. g. with wye-delta starters.

Application areas

- Pumps
- Heat pumps
- Hydraulic pumps
- Presses
- Conveyors
- Roller conveyor
- Screw conveyors
- Escalators
- Piston compressors
- Screw compressors
- Small fans
- Centrifugal blowers
- Bow thrusters
- Stirrers
- Extruders
- Lathes
- Milling machines

Selection and ordering data


3RW40 28-1BB14


3RW40 38-1BB14


3RW40 47-1BB14

Ambient temperature 40 °C				Ambient temperature 50 °C					Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Rated operational current I_e [1]	Rated power of induction motors for rated operational voltage U_e			Rated operational current I_e [1]	Rated power of induction motors for rated operational voltage U_e											
	230 V	400 V	500 V		200 V	230 V	460 V	575 V								
A	kW	kW	kW	A	hp	hp	hp	hp								kg
Rated operational voltage U_e 200 ... 480 V [2]																
• With screw terminals																
12.5	3	**5.5**	--	11	3	3	**7.5**	--	**S0**	▶	**3RW40 24-1BB□4**		1	1 unit	131	0.770
25	5.5	**11**	--	23	5	5	**15**	--	**S0**	▶	**3RW40 26-1BB□4**		1	1 unit	131	0.770
32	7.5	**15**	--	29	7.5	7.5	**20**	--	**S0**	▶	**3RW40 27-1BB□4**		1	1 unit	131	0.770
38	11	**18.5**	--	34	10	10	**25**	--	**S0**	▶	**3RW40 28-1BB□4**		1	1 unit	131	0.770
• With spring-type terminals																
12.5	3	**5.5**	--	11	3	3	**7.5**	--	**S0**	B	**3RW40 24-2BB□4**		1	1 unit	131	0.770
25	5.5	**11**	--	23	5	5	**15**	--	**S0**	B	**3RW40 26-2BB□4**		1	1 unit	131	0.770
32	7.5	**15**	--	29	7.5	7.5	**20**	--	**S0**	B	**3RW40 27-2BB□4**		1	1 unit	131	0.770
38	11	**18.5**	--	34	10	10	**25**	--	**S0**	B	**3RW40 28-2BB□4**		1	1 unit	131	0.770
• With screw or spring-type terminals																
45	11	**22**	--	42	10	15	**30**	--	**S2**	▶	**3RW40 36-□BB□4**		1	1 unit	131	1.350
63	18.5	**30**	--	58	15	20	**40**	--	**S2**	▶	**3RW40 37-□BB□4**		1	1 unit	131	1.350
72	22	**37**	--	62	20	20	**40**	--	**S2**	▶	**3RW40 38-□BB□4**		1	1 unit	131	1.350
• With screw or spring-type terminals																
80	22	**45**	--	73	20	25	**50**	--	**S3**	▶	**3RW40 46-□BB□4**		1	1 unit	131	1.900
106	30	**55**	--	98	30	30	**75**	--	**S3**	▶	**3RW40 47-□BB□4**		1	1 unit	131	1.900
Rated operational voltage U_e 400 ... 600 V																
• With screw terminals																
12.5	--	5.5	**7.5**	11	--	--	7.5	**10**	**S0**	B	**3RW40 24-1BB□5**		1	1 unit	131	0.770
25	--	11	**15**	23	--	--	15	**20**	**S0**	B	**3RW40 26-1BB□5**		1	1 unit	131	0.770
32	--	15	**18.5**	29	--	--	20	**25**	**S0**	B	**3RW40 27-1BB□5**		1	1 unit	131	0.770
38	--	18.5	**22**	34	--	--	25	**30**	**S0**	B	**3RW40 28-1BB□5**		1	1 unit	131	0.770
• With spring-type terminals																
12.5	--	5.5	**7.5**	11	--	--	7.5	**10**	**S0**	B	**3RW40 24-2BB□5**		1	1 unit	131	0.770
25	--	11	**15**	23	--	--	15	**20**	**S0**	B	**3RW40 26-2BB□5**		1	1 unit	131	0.770
32	--	15	**18.5**	29	--	--	20	**25**	**S0**	B	**3RW40 27-2BB□5**		1	1 unit	131	0.770
38	--	18.5	**22**	34	--	--	25	**30**	**S0**	B	**3RW40 28-2BB□5**		1	1 unit	131	0.770
• With screw or spring-type terminals																
45	--	22	**30**	42	--	--	30	**40**	**S2**	B	**3RW40 36-□BB□5**		1	1 unit	131	1.350
63	--	30	**37**	58	--	--	40	**50**	**S2**	B	**3RW40 37-□BB□5**		1	1 unit	131	1.350
72	--	37	**45**	62	--	--	40	**60**	**S2**	B	**3RW40 38-□BB□5**		1	1 unit	131	1.350
• With screw or spring-type terminals																
80	--	45	**55**	73	--	--	50	**60**	**S3**	B	**3RW40 46-□BB□5**		1	1 unit	131	1.900
106	--	55	**75**	98	--	--	75	**75**	**S3**	B	**3RW40 47-□BB□5**		1	1 unit	131	1.900

Order No. supplement for connection types

- With screw terminals **1**
- With spring-type terminals [3] **2**

Order No. supplement for rated control supply voltage U_s

- 24 V AC/DC **0**
- 110 ... 230 V AC/DC **1**

[1] Stand-alone installation without auxiliary fan.

[2] Soft starter with screw terminals: delivery times ▶ (preferred type).

[3] Main circuit connection: screw terminals.

Note:
Selection of the soft starter depends on the rated motor current.
The SIRIUS 3RW40 solid-state soft starters are designed for easy starting conditions. $J_{Load} < 10 \times J_{Motor}$. In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger device. Siemens recommends the use of the selection and simulation program Win-Soft Starter. For information about rated currents for ambient temperatures > 40 °C, see technical specifications.

*** You can order this quantity or a multiple thereof.**


3RW40 28-1TB04


3RW40 38-1TB04


3RW40 47-1TB04

Ambient temperature 40 °C				Ambient temperature 50 °C					Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Rated operational current I_e [1]	Rated power of induction motors for rated operational voltage U_e			Rated operational current I_e [1]	Rated power of induction motors for rated operational voltage U_e											
	230 V	400 V	500 V		200 V	230 V	460 V	575 V								
A	kW	kW	kW	A	hp	hp	hp	hp								kg
Rated operational voltage U_e 200 ... 480 V[2], with thermistor motor protection, rated control supply voltage U_s 24 V AC/DC																
• With screw terminals																
12.5	3	**5.5**	--	11	3	3	**7.5**	--	**S0**	▶	**3RW40 24-1TB04**		1	1 unit	131	0.770
25	5.5	**11**	--	23	5	5	**15**	--	**S0**	▶	**3RW40 26-1TB04**		1	1 unit	131	0.770
32	7.5	**15**	--	29	7.5	7.5	**20**	--	**S0**	▶	**3RW40 27-1TB04**		1	1 unit	131	0.770
38	11	**18.5**	--	34	10	10	**25**	--	**S0**	▶	**3RW40 28-1TB04**		1	1 unit	131	0.770
• With spring-type terminals																
12.5	3	**5.5**	--	11	3	3	**7.5**	--	**S0**	B	**3RW40 24-2TB04**		1	1 unit	131	0.770
25	5.5	**11**	--	23	5	5	**15**	--	**S0**	B	**3RW40 26-2TB04**		1	1 unit	131	0.770
32	7.5	**15**	--	29	7.5	7.5	**20**	--	**S0**	B	**3RW40 27-2TB04**		1	1 unit	131	0.770
38	11	**18.5**	--	34	10	10	**25**	--	**S0**	B	**3RW40 28-2TB04**		1	1 unit	131	0.770
• With screw or spring-type terminals																
45	11	**22**	--	42	10	15	**30**	--	**S2**	▶	**3RW40 36-☐TB04**		1	1 unit	131	1.350
63	18.5	**30**	--	58	15	20	**40**	--	**S2**	▶	**3RW40 37-☐TB04**		1	1 unit	131	1.350
72	22	**37**	--	62	20	20	**40**	--	**S2**	▶	**3RW40 38-☐TB04**		1	1 unit	131	1.350
• With screw or spring-type terminals																
80	22	**45**	--	73	20	25	**50**	--	**S3**	▶	**3RW40 46-☐TB04**		1	1 unit	131	1.900
106	30	**55**	--	98	30	30	**75**	--	**S3**	▶	**3RW40 47-☐TB04**		1	1 unit	131	1.900
Rated operational voltage U_e 400 ... 600 V, with thermistor motor protection, rated control supply voltage U_s 24 V AC/DC																
• With screw terminals																
12.5	--	5.5	**7.5**	11	--	--	7.5	**10**	**S0**	B	**3RW40 24-1TB05**		1	1 unit	131	0.770
25	--	11	**15**	23	--	--	15	**20**	**S0**	B	**3RW40 26-1TB05**		1	1 unit	131	0.770
32	--	15	**18.5**	29	--	--	20	**25**	**S0**	B	**3RW40 27-1TB05**		1	1 unit	131	0.770
38	--	18.5	**22**	34	--	--	25	**30**	**S0**	B	**3RW40 28-1TB05**		1	1 unit	131	0.770
• With spring-type terminals																
12.5	--	5.5	**7.5**	11	--	--	7.5	**10**	**S0**	B	**3RW40 24-2TB05**		1	1 unit	131	0.770
25	--	11	**15**	23	--	--	15	**20**	**S0**	B	**3RW40 26-2TB05**		1	1 unit	131	0.770
32	--	15	**18.5**	29	--	--	20	**25**	**S0**	B	**3RW40 27-2TB05**		1	1 unit	131	0.770
38	--	18.5	**22**	34	--	--	25	**30**	**S0**	B	**3RW40 28-2TB05**		1	1 unit	131	0.770
• With screw or spring-type terminals																
45	--	22	**30**	42	--	--	30	**40**	**S2**	B	**3RW40 36-☐TB05**		1	1 unit	131	1.350
63	--	30	**37**	58	--	--	40	**50**	**S2**	B	**3RW40 37-☐TB05**		1	1 unit	131	1.350
72	--	37	**45**	62	--	--	40	**60**	**S2**	B	**3RW40 38-☐TB05**		1	1 unit	131	1.350
• With screw or spring-type terminals																
80	--	45	**55**	73	--	--	50	**60**	**S3**	B	**3RW40 46-☐TB05**		1	1 unit	131	1.900
106	--	55	**75**	98	--	--	75	**75**	**S3**	B	**3RW40 47-☐TB05**		1	1 unit	131	1.900

Order No. supplement for connection types

• With screw terminals	**1**
• With spring-type terminals[3]	**2**

1) Stand-alone installation without auxiliary fan.

2) Soft starter with screw terminals: delivery times ▶ (preferred type).

3) Main circuit connection: screw terminals.

Note:
Selection of the soft starter depends on the rated motor current.
The SIRIUS 3RW40 solid-state soft starters are designed for easy starting conditions. $J_{Load} < 10 \times J_{Motor}$. In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger device. Siemens recommends the use of the selection and simulation program Win-Soft Starter. For information about rated currents for ambient temperatures > 40 °C, see technical specifications.

* You can order this quantity or a multiple thereof.

3RW Soft Starters

3RW40
for standard applications

3RW40 56-6BB44

3RW40 76-6BB44

Ambient temperature 40 °C				Ambient temperature 50 °C					Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Rated operational current I_e [1]	Rated power of induction motors for rated operational voltage U_e			Rated operational current I_e [1]	Rated power of induction motors for rated operational voltage U_e											
	230 V	400 V	500 V		200 V	230 V	460 V	575 V								
A	kW	kW	kW	A	hp	hp	hp	hp								kg
Rated operational voltage U_e 200 ... 460 V [2]																
• With screw or spring-type terminals																
134	37	**75**	--	117	30	40	**75**	--	**S6**	B	**3RW40 55-□BB□4**		1	1 unit	131	4.900
162	45	**90**	--	145	40	50	**100**	--		B	**3RW40 56-□BB□4**		1	1 unit	131	6.900
• With screw or spring-type terminals																
230	75	**132**	--	205	60	75	**150**	--	**S12**	B	**3RW40 73-□BB□4**		1	1 unit	131	8.900
280	90	**160**	--	248	75	100	**200**	--		B	**3RW40 74-□BB□4**		1	1 unit	131	8.900
356	110	**200**	--	315	100	125	**250**	--		B	**3RW40 75-□BB□4**		1	1 unit	131	8.900
432	132	**250**	--	385	125	150	**300**	--		B	**3RW40 76-□BB□4**		1	1 unit	131	8.900
Rated operational voltage U_e 400 ... 600 V [3]																
• With screw or spring-type terminals																
134	--	75	**90**	117	--	--	75	**100**	**S6**	B	**3RW40 55-□BB□5**		1	1 unit	131	4.900
162	--	90	**110**	145	--	--	100	**150**		B	**3RW40 56-□BB□5**		1	1 unit	131	6.900
• With screw or spring-type terminals																
230	--	132	**160**	205	--	--	150	**200**	**S12**	B	**3RW40 73-□BB□5**		1	1 unit	131	8.900
280	--	160	**200**	248	--	--	200	**250**		B	**3RW40 74-□BB□5**		1	1 unit	131	8.900
356	--	200	**250**	315	--	--	250	**300**		B	**3RW40 75-□BB□5**		1	1 unit	131	8.900
432	--	250	**315**	385	--	--	300	**400**		B	**3RW40 76-□BB□5**		1	1 unit	131	8.900

Order No. supplement for connection types [4]

- With screw terminals — **6**
- With spring-type terminals — **2**

Order No. supplement for the rated control supply voltage U_s [5]

- 115 V AC — **3**
- 230 V AC — **4**

1) Stand-alone installation.

2) Soft starter with screw terminals: delivery times ▶ (preferred type).

3) Soft starter with screw terminals: delivery time A.

4) Main circuit connection: busbar connection.

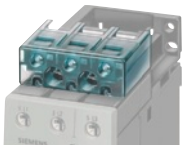
5) Control by way of the internal 24 V DC supply and direct control by means of PLC possible.

Note:
Selection of the soft starter depends on the rated motor current.

The SIRIUS 3RW40 solid-state soft starters are designed for easy starting conditions. $J_{Load} < 10 \times J_{Motor}$. In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger device. Siemens recommends the use of the selection and simulation program Win-Soft Starter. For information about rated currents for ambient temperatures > 40 °C, see technical specifications.

* You can order this quantity or a multiple thereof.

Accessories

	For soft starters Type	Size	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Box terminal blocks for soft starters										
	**For round and ribbon cables**									
	3RW40 5.	**S6**	• Up to 70 mm²	▶	**3RT19 55-4G**		1	1 unit	101	0.230
			• Up to 120 mm²	▶	**3RT19 56-4G**		1	1 unit	101	0.260
	3RW40 7.	**S12**	• Up to 240 mm²	▶	**3RT19 66-4G**		1	1 unit	101	0.676
Auxiliary terminals										
	Auxiliary terminals, 3-pole									
	3RW40 4.	**S3**		B	**3RT19 46-4F**		1	1 unit	101	0.035
Covers for soft starters										
	**Terminal covers for box terminals**									
	Additional touch protection to be fitted at the box terminals (2 units required per device)									
	3RW40 3.	**S2**		▶	**3RT19 36-4EA2**		1	1 unit	101	0.020
	3RW40 4.	**S3**		▶	**3RT19 46-4EA2**		1	1 unit	101	0.025
	3RW40 5.	**S6**		▶	**3RT19 56-4EA2**		1	1 unit	101	0.030
	3RW40 7.	**S12**		▶	**3RT19 66-4EA2**		1	1 unit	101	0.040
	**Terminal covers for cable lugs and busbar connections**									
	3RW40 4.	**S3**	For complying with the phase clearances and as touch protection if box terminal is removed (2 units required per contactor)	▶	**3RT19 46-4EA1**		1	1 unit	101	0.040
	3RW40 5.	**S6**		▶	**3RT19 56-4EA1**		1	1 unit	101	0.070
	3RW40 7.	**S12**		▶	**3RT19 66-4EA1**		1	1 unit	101	0.130
	**Sealing covers**									
	3RW40 2. to 3RW40 4.	**S0, S2, S3**		▶	**3RW49 00-0PB10**		1	1 unit	131	0.005
	3RW40 5. and 3RW40 7.	**S6, S12**		▶	**3RW49 00-0PB00**		1	1 unit	131	0.010
Modules for RESET[1)]										
	**Modules for remote RESET, electrical**									
	Operating range 0.85 ... 1.1 x U_s, power consumption 80 VA AC, 70 W DC, ON period 0.2 s ... 4 s, switching frequency 60/h									
	3RW40 5. and 3RW40 7.	**S6, S12**	• 24 ... 30 V AC/DC	▶	**3RU19 00-2AB71**		1	1 unit	101	0.066
			• 110 ... 127 V AC/DC	▶	**3RU19 00-2AF71**		1	1 unit	101	0.067
			• 220 ... 250 V AC/DC	▶	**3RU19 00-2AM71**		1	1 unit	101	0.066
	**Mechanical RESET comprising**									
	3RW40 5. and 3RW40 7.	**S6, S12**	• Resetting plungers, holders and formers	▶	**3RU19 00-1A**		1	1 unit	101	0.038
			• Suitable pushbutton IP65, Ø 22 mm, 12 mm stroke	B	**3SB30 00-0EA11**		1	1 unit	102	0.020
			• Extension plunger	A	**3SX13 35**		1	1 unit	102	0.004
	**Cable releases with holder for RESET**									
	For Ø 6.5 mm holes in the control panel; max. control panel thickness 8 mm									
	3RW40 5. and 3RW40 7.	**S6, S12**	• Length 400 mm	▶	**3RU19 00-1B**		1	1 unit	101	0.063
			• Length 600 mm	▶	**3RU19 00-1C**		1	1 unit	101	0.073

[1)] Remote RESET already integrated in the 3RW40 2. to 3RW40 4. soft starters.

* You can order this quantity or a multiple thereof.

3RW40
for standard applications

For soft starters Type	Size	Motor starter protectors Size	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Link modules to motor starter protectors									
									
3RW40 24, 3RW40 26	**S0**	**S0**	►	**3RA19 21-1A**		1	10 units	101	0.028
3RW40 36	**S2**	**S2**	►	**3RA19 31-1A**		1	5 units	101	0.033
3RW40 46, 3RW40 47	**S3**	**S3**	►	**3RA19 41-1A**		1	5 units	101	0.072
Fans (to increase switching frequency and for device mounting in positions different from the normal position)									
									
3RW40 2.	**S0**		►	**3RW49 28-8VB00**		1	1 unit	131	0.010
3RW40 3., 3RW40 4.	**S2, S3**		►	**3RW49 47-8VB00**		1	1 unit	131	0.020
Operating instructions[1)]									
For soft starters									
3RW40 2.	**S0**			**3ZX10 12-0RW40-1AA1**					
3RW40 3.	**S2**								
3RW40 4.	**S3**								
3RW40 5.	**S6**			**3ZX10 12-0RW40-2DA1**					
3RW40 7.	**S12**								

[1)] The operating instructions are included in the scope of supply.

Spare parts

For soft starters Type	Size	Version Rated control supply voltage U_s	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Fans									
									
Fans									
3RW40 5.-.BB3.	**S6**	115 V AC	►	**3RW49 36-8VX30**		1	1 unit	131	0.300
3RW40 5.-.BB4.	**S6**	230 V AC	►	**3RW49 36-8VX40**		1	1 unit	131	0.300
3RW40 7.-.BB3.	**S12**	115 V AC	►	**3RW49 47-8VX30**		1	1 unit	131	0.500
3RW40 7.-.BB4.	**S12**	230 V AC	►	**3RW49 47-8VX40**		1	1 unit	131	0.500

* You can order this quantity or a multiple thereof.

More information

Application examples for normal starting (Class 10)

Normal starting Class 10 (up to 20 s with 350 % $I_{n\ motor}$),
The soft starter rating can be selected to be as high as the rating of the motor used.

Application		Conveyor belt	Roller conveyor	Compressor	Small fan	Pump	Hydraulic pump
Starting parameters							
• Voltage ramp and current limiting							
- Starting voltage	%	70	60	50	40	40	40
- Starting time	s	10	10	10	10	10	10
- Current limit value		5 x I_M	5 x I_M	4 x I_M	4 x I_M	4 x I_M	4 x I_M
Ramp-down time	s	5	5	0	0	10	0

Application examples for heavy starting (Class 20)

Heavy starting Class 20 (up to 40 s with 350 % $I_{n\ motor}$),
The soft starter has to be selected at least one rating class higher than the motor used.

Application		Stirrer	Centrifuge
Starting parameters			
• Voltage ramp and current limiting			
- Starting voltage	%	40	40
- Starting time	s	20	20
- Current limit value		4 x I_M	4 x I_M
Ramp-down time		0	0

Note:
These tables present sample set values and device sizes. They are intended only for the purposes of information and are not binding. The set values depend on the application in question and must be optimized during start-up.
The soft starter dimensions should be checked where necessary with the Win-Soft Starter software or with the help of Technical Assistance.

3RW40
for standard applications

Configuration

The 3RW solid-state soft starters are designed for easy starting conditions. In the event of deviating conditions or increased switching frequency, it may be necessary to choose a larger device. For accurate dimensioning, use the Win-Soft Starter selection and simulation program.

Where long starting times are involved, the integrated solid-state overload relay for heavy starting should not be disconnected. PTC sensors are recommended. This also applies for the smooth ramp-down because during the ramp-down time an additional current loading applies in contrast to free ramp-down.

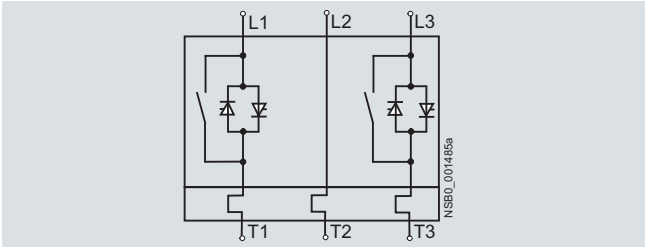
In the case of high switching frequencies in S4 mode, Siemens recommends the use of PTC sensors. For corresponding device versions with integrated thermistor motor protection or separate thermistor evaluation devices see Chapter 7 “Monitoring and Control Devices“.

In the motor feeder between the SIRIUS 3RW soft starter and the motor, no capacitive elements are permitted (e. g. no reactive-power compensation equipment). In addition, neither static systems for reactive-power compensation nor dynamic PFC (Power Factor Correction) must be operated in parallel during starting and ramp-down of the soft starter. This is important to prevent faults arising on the compensation equipment and/or the soft starter.

All elements of the main circuit (such as fuses and controls) should be dimensioned for direct starting, following the local short-circuit conditions. Fuses, controls and overload relays must be ordered separately. Please observe the maximum switching frequencies specified in the technical specifications.

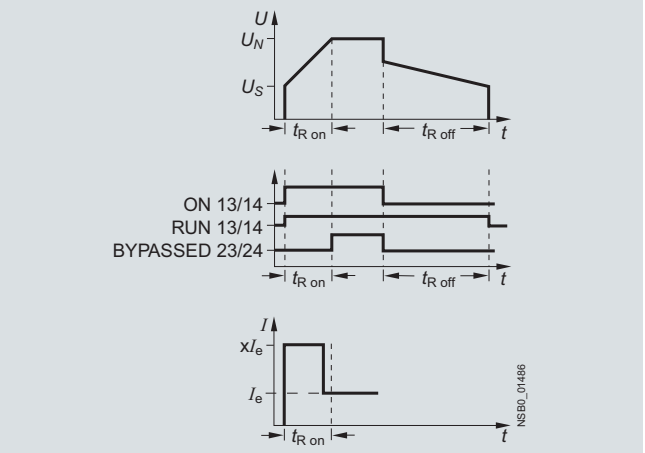
Note:
When induction motors are switched on, voltage drops normally appear on starters of all types (direct starters, wye-delta starters, soft starters). The infeed transformer must always be dimensioned such that the voltage dip when starting the motor remains within the permissible tolerance. If the infeed transformer is dimensioned with only a small margin, it is best for the control voltage to be supplied from a separate circuit (independently of the main voltage) in order to avoid the potential switching off of the soft starter.

Power electronics schematic circuit diagram



A bypass contact system and solid-state overload relay are already integrated in the 3RW40 soft starter and therefore do not have to be ordered separately.

Status graphs



Win-Soft Starter selection and simulation program

With this software, you can simulate and select all Siemens soft starters, taking into account various parameters such as mains properties, motor and load data, and special application requirements.

The software is a valuable tool, which makes complicated, lengthy manual calculations for determining the required soft starters superfluous.

The Win-Soft Starter selection and simulation program can be downloaded from:
http://www.siemens.com/softstarter > Software

More information can be found on the Internet at:
http://www.siemens.com/softstarter

Overview

In addition to soft starting and soft ramp-down, the solid-state SIRIUS 3RW44 soft starters provide numerous functions for higher-level requirements. They cover a performance range up to 710 kW (at 400 V) in the inline circuit and up to 1200 kW (at 400 V) in the inside-delta circuit.

The SIRIUS 3RW44 soft starters are characterized by a compact design for space-saving and clearly arranged control cabinet layouts. For optimized motor starting and stopping the innovative SIRIUS 3RW44 soft starters are an attractive alternative with considerable savings potential compared to applications with a frequency converter. The new torque control and adjustable current limiting enable the High-Feature soft starters to be used in nearly every conceivable task. They guarantee the reliable avoidance of sudden torque applications and current peaks during motor starting and stopping. This creates savings potential when calculating the size of the switchgear and when servicing the machinery installed. Be it for inline circuits or inside-delta circuits – the SIRIUS 3RW44 soft starter offers savings especially in terms of size and equipment costs.

The bypass contacts already integrated in the soft starter bypass the thyristors after a motor ramp-up is detected. This results in a further great reduction in the heat loss occuring during operation of the soft starter at rated value.

Combinations of various starting, operating and ramp-down possibilities ensure an optimum adaptation to the application-specific requirements. Operation and commissioning can be performed with the menu-controlled keypad and a menu-prompted, multi-line graphic display with background lighting. The optimized motor ramp-up and ramp-down can be effected quickly, easily and reliably by means of just a few settings with a previously selected language. Four-key operation and plain-text displays for each menu point guarantee full clarity at every moment of the parameterization and operation.

Applicable standards

- IEC 60947-4-2
- UL/CSA

Soft Starter ES parameterization software

Soft Starter ES software is used for the parameterization, monitoring and service diagnostics of SIRIUS 3RW44 High Feature soft starters.
See Chapter 12 "Planning and Configuration with SIRIUS".

Application

The SIRIUS 3RW44 solid-state soft starters are suitable for the torque-controlled soft starting and smooth ramp-down as well as braking of three-phase asynchronous motors.

Application areas, e. g.

- Pumps
- Fans
- Compressors
- Water transport
- Conveying systems and lifts
- Hydraulics
- Machine tools
- Mills
- Saws
- Breakers
- Mixers
- Centrifuges
- Industrial cooling and refrigerating systems

3RW44
for high-feature applications

Selection and ordering data


3RW44 27-1BC44


3RW44 36-6BC44


3RW44 47-6BC44


3RW44 58-6BC44


3RW44 66-6BC44

Ambient temperature 40 °C						Ambient temperature 50 °C					DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Rated operational current I_e	Rated power of induction motors for rated operational voltage U_e					Rated operational current I_e	Rated power of induction motors for rated operational voltage U_e										
	230 V	400 V	500 V	690 V	1000 V		200 V	230 V	460 V	575 V							
A	kW	kW	kW	kW	kW	A	hp	hp	hp	hp							kg
Inline circuits, rated operational voltage 200 ... 460 V[1]																	
29	5.5	**15**	--	--	--	26	7.5	7.5	**15**	--	▶	**3RW44 22-□BC□4**		1	1 unit	131	6.500
36	7.5	**18.5**	--	--	--	32	10	10	**20**	--	▶	**3RW44 23-□BC□4**		1	1 unit	131	6.500
47	11	**22**	--	--	--	42	10	15	**25**	--	▶	**3RW44 24-□BC□4**		1	1 unit	131	6.500
57	15	**30**	--	--	--	51	15	15	**30**	--	▶	**3RW44 25-□BC□4**		1	1 unit	131	6.500
77	18.5	**37**	--	--	--	68	20	20	**50**	--	▶	**3RW44 26-□BC□4**		1	1 unit	131	6.500
93	22	**45**	--	--	--	82	25	25	**60**	--	▶	**3RW44 27-□BC□4**		1	1 unit	131	6.500
Order No. supplement for connection types																	
• With spring-type terminals												**3**					
• With screw terminals												**1**					
113	30	**55**	--	--	--	100	30	30	**75**	--	B	**3RW44 34-□BC□4**		1	1 unit	131	7.900
134	37	**75**	--	--	--	117	30	40	**75**	--	B	**3RW44 35-□BC□4**		1	1 unit	131	7.900
162	45	**90**	--	--	--	145	40	50	**100**	--	B	**3RW44 36-□BC□4**		1	1 unit	131	7.900
203	55	**110**	--	--	--	180	50	60	**125**	--	B	**3RW44 43-□BC□4**		1	1 unit	131	11.500
250	75	**132**	--	--	--	215	60	75	**150**	--	B	**3RW44 44-□BC□4**		1	1 unit	131	11.500
313	90	**160**	--	--	--	280	75	100	**200**	--	B	**3RW44 45-□BC□4**		1	1 unit	131	11.500
356	110	**200**	--	--	--	315	100	125	**250**	--	B	**3RW44 46-□BC□4**		1	1 unit	131	11.500
432	132	**250**	--	--	--	385	125	150	**300**	--	B	**3RW44 47-□BC□4**		1	1 unit	131	11.500
551	160	**315**	--	--	--	494	150	200	**400**	--	C	**3RW44 53-□BC□4**		1	1 unit	131	50.000
615	200	**355**	--	--	--	551	150	200	**450**	--	C	**3RW44 54-□BC□4**		1	1 unit	131	50.000
693	200	**400**	--	--	--	615	200	250	**500**	--	C	**3RW44 55-□BC□4**		1	1 unit	131	50.000
780	250	**450**	--	--	--	693	200	250	**600**	--	C	**3RW44 56-□BC□4**		1	1 unit	131	50.000
880	250	**500**	--	--	--	780	250	300	**700**	--	C	**3RW44 57-□BC□4**		1	1 unit	131	50.000
970	315	**560**	--	--	--	850	300	350	**750**	--	C	**3RW44 58-□BC□4**		1	1 unit	131	50.000
1076	355	**630**	--	--	--	970	350	400	**850**	--	C	**3RW44 65-□BC□4**		1	1 unit	131	78.000
1214	400	**710**	--	--	--	1076	350	450	**950**	--	C	**3RW44 66-□BC□4**		1	1 unit	131	78.000
Order No. supplement for connection types																	
• With spring-type terminals												**2**					
• With screw terminals												**6**					
Order No. supplement for the rated control supply voltage U_s[2]																	
• 115 V AC													**3**				
• 230 V AC													**4**				

[1] 3RW44 2. ... 3RW44 4. soft starters with screw terminals: delivery times ▶ (preferred type).

[2] Control by way of the internal 24 V DC supply and direct control by means of PLC possible.

Note:
Soft starter selection depends on the rated motor current.

The 3RW44 solid-state soft starters are designed for normal starting (Class 10). (Inertia load of the overall operating mechanism J_{Load} <10 x J_{Motor}; starting current 350 % x I_e for 20 s similar load). For any other conditions of use, the devices should be selected using the Win-Soft Starter selection and simulation program. See Technical specifications for information about rated currents for ambient temperatures > 40 °C and switching frequency.

* You can order this quantity or a multiple thereof.

Ambient temperature 40 °C						Ambient temperature 50 °C					DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Rated operational current I_e	Rated power of induction motors for rated operational voltage U_e					Rated operational current I_e	Rated power of induction motors for rated operational voltage U_e										
	230 V	400 V	500 V	690 V	1000 V		200 V	230 V	460 V	575 V							
A	kW	kW	kW	kW	kW	A	hp	hp	hp	hp							kg
Inline circuits, rated operational voltage 400 ... 600 V[1]																	
29	--	15	**18.5**	--	--	26	--	--	15	**20**	A	**3RW44 22-□BC□5**		1	1 unit	131	6.500
36	--	18.5	**22**	--	--	32	--	--	20	**25**	A	**3RW44 23-□BC□5**		1	1 unit	131	6.500
47	--	22	**30**	--	--	42	--	--	25	**30**	A	**3RW44 24-□BC□5**		1	1 unit	131	6.500
57	--	30	**37**	--	--	51	--	--	30	**40**	A	**3RW44 25-□BC□5**		1	1 unit	131	6.500
77	--	37	**45**	--	--	68	--	--	50	**50**	A	**3RW44 26-□BC□5**		1	1 unit	131	6.500
93	--	45	**55**	--	--	82	--	--	60	**75**	A	**3RW44 27-□BC□5**		1	1 unit	131	6.500
Order No. supplement for connection types																	
• With spring-type terminals												**3**					
• With screw terminals												**1**					
113	--	55	**75**	--	--	100	--	--	75	**75**	B	**3RW44 34-□BC□5**		1	1 unit	131	7.900
134	--	75	**90**	--	--	117	--	--	75	**100**	B	**3RW44 35-□BC□5**		1	1 unit	131	7.900
162	--	90	**110**	--	--	145	--	--	100	**125**	B	**3RW44 36-□BC□5**		1	1 unit	131	7.900
203	--	110	**132**	--	--	180	--	--	125	**150**	B	**3RW44 43-□BC□5**		1	1 unit	131	11.500
250	--	132	**160**	--	--	215	--	--	150	**200**	B	**3RW44 44-□BC□5**		1	1 unit	131	11.500
313	--	160	**200**	--	--	280	--	--	200	**250**	B	**3RW44 45-□BC□5**		1	1 unit	131	11.500
356	--	200	**250**	--	--	315	--	--	250	**300**	B	**3RW44 46-□BC□5**		1	1 unit	131	11.500
432	--	250	**315**	--	--	385	--	--	300	**400**	B	**3RW44 47-□BC□5**		1	1 unit	131	11.500
551	--	315	**355**	--	--	494	--	--	400	**500**	C	**3RW44 53-□BC□5**		1	1 unit	131	50.000
615	--	355	**400**	--	--	551	--	--	450	**600**	C	**3RW44 54-□BC□5**		1	1 unit	131	50.000
693	--	400	**500**	--	--	615	--	--	500	**700**	C	**3RW44 55-□BC□5**		1	1 unit	131	50.000
780	--	450	**560**	--	--	693	--	--	600	**750**	C	**3RW44 56-□BC□5**		1	1 unit	131	50.000
880	--	500	**630**	--	--	780	--	--	700	**850**	C	**3RW44 57-□BC□5**		1	1 unit	131	50.000
970	--	560	**710**	--	--	850	--	--	750	**900**	C	**3RW44 58-□BC□5**		1	1 unit	131	50.000
1076	--	630	**800**	--	--	970	--	--	850	**1100**	C	**3RW44 65-□BC□5**		1	1 unit	131	78.000
1214	--	710	**900**	--	--	1076	--	--	950	**1200**	C	**3RW44 66-□BC□5**		1	1 unit	131	78.000
Order No. supplement for connection types																	
• With spring-type terminals												**2**					
• With screw terminals												**6**					
Order No. supplement for the rated control supply voltage U_s[2]																	
• 115 V AC													**3**				
• 230 V AC													**4**				

[1] Soft starter with screw terminals:
3RW44 2. ... 3RW44 4. Delivery time A,
3RW44 5. ... 3RW44 6. Delivery time B.

[2] Control by way of the internal 24 V DC supply and direct control by means of PLC possible.

Note:
Soft starter selection depends on the rated motor current.

The 3RW44 solid-state soft starters are designed for normal starting (Class 10). (Inertia load of the overall operating mechanism $J_{Load} < 10 \times J_{Motor}$; starting current 350 % x I_e for 20 s similar load). For any other conditions of use, the devices should be selected using the Win-Soft Starter selection and simulation program. See Technical specifications for information about rated currents for ambient temperatures > 40 °C and switching frequency.

6

*** You can order this quantity or a multiple thereof.**

3RW44
for high-feature applications

Ambient temperature 40 °C						Ambient temperature 50 °C					DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Rated operational current I_e	Rated power of induction motors for rated operational voltage U_e					Rated operational current I_e	Rated power of induction motors for rated operational voltage U_e										
	230 V	400 V	500 V	690 V	1000 V		200 V	230 V	460 V	575 V							
A	kW	kW	kW	kW	kW	A	hp	hp	hp	hp							kg
Inline circuits, rated operational voltage 400 ... 690 V																	
29	--	15	18.5	**30**	--	26	--	--	15	**20**	B	**3RW44 22-□BC□6**		1	1 unit	131	6.500
36	--	18.5	22	**37**	--	32	--	--	20	**25**	B	**3RW44 23-□BC□6**		1	1 unit	131	6.500
47	--	22	30	**45**	--	42	--	--	25	**30**	B	**3RW44 24-□BC□6**		1	1 unit	131	6.500
57	--	30	37	**55**	--	51	--	--	30	**40**	B	**3RW44 25-□BC□6**		1	1 unit	131	6.500
77	--	37	45	**75**	--	68	--	--	50	**50**	B	**3RW44 26-□BC□6**		1	1 unit	131	6.500
93	--	45	55	**90**	--	82	--	--	60	**75**	B	**3RW44 27-□BC□6**		1	1 unit	131	6.500
Order No. supplement for connection types																	
• With spring-type terminals												**3**					
• With screw terminals												**1**					
113	--	55	75	**110**	--	100	--	--	75	**75**	B	**3RW44 34-□BC□6**		1	1 unit	131	7.900
134	--	75	90	**132**	--	117	--	--	75	**100**	B	**3RW44 35-□BC□6**		1	1 unit	131	7.900
162	--	90	110	**160**	--	145	--	--	100	**125**	B	**3RW44 36-□BC□6**		1	1 unit	131	7.900
203	--	110	132	**200**	--	180	--	--	125	**150**	B	**3RW44 43-□BC□6**		1	1 unit	131	11.500
250	--	132	160	**250**	--	215	--	--	150	**200**	B	**3RW44 44-□BC□6**		1	1 unit	131	11.500
313	--	160	200	**315**	--	280	--	--	200	**250**	B	**3RW44 45-□BC□6**		1	1 unit	131	11.500
356	--	200	250	**355**	--	315	--	--	250	**300**	B	**3RW44 46-□BC□6**		1	1 unit	131	11.500
432	--	250	315	**400**	--	385	--	--	300	**400**	B	**3RW44 47-□BC□6**		1	1 unit	131	11.500
551	--	315	355	**560**	--	494	--	--	400	**500**	C	**3RW44 53-□BC□6**		1	1 unit	131	50.000
615	--	355	400	**630**	--	551	--	--	450	**600**	C	**3RW44 54-□BC□6**		1	1 unit	131	50.000
693	--	400	500	**710**	--	615	--	--	500	**700**	C	**3RW44 55-□BC□6**		1	1 unit	131	50.000
780	--	450	560	**800**	--	693	--	--	600	**750**	C	**3RW44 56-□BC□6**		1	1 unit	131	50.000
880	--	500	630	**900**	--	780	--	--	700	**850**	C	**3RW44 57-□BC□6**		1	1 unit	131	50.000
970	--	560	710	**1000**	--	850	--	--	750	**900**	C	**3RW44 58-□BC□6**		1	1 unit	131	50.000
1076	--	630	800	**1100**	--	970	--	--	850	**1100**	C	**3RW44 65-□BC□6**		1	1 unit	131	78.000
1214	--	710	900	**1200**	--	1076	--	--	950	**1200**	C	**3RW44 66-□BC□6**		1	1 unit	131	78.000
Order No. supplement for connection types																	
• With spring-type terminals												**2**					
• With screw terminals												**6**					
Order No. supplement for the rated control supply voltage U_s [1)]																	
• 115 V AC													**3**				
• 230 V AC													**4**				

1) Control by way of the internal 24 V DC supply and direct control by means of PLC possible.

Note:
Soft starter selection depends on the rated motor current.

The 3RW44 solid-state soft starters are designed for normal starting (Class 10). (Inertia load of the overall operating mechanism J_{Load} <10 x J_{Motor}; starting current 350 % x I_e for 20 s similar load). For any other conditions of use, the devices should be selected using the Win-Soft Starter selection and simulation program. See Technical specifications for information about rated currents for ambient temperatures > 40 °C and switching frequency.

* You can order this quantity or a multiple thereof.


3RW44 27-1BC44


3RW44 36-6BC44


3RW44 47-6BC44


3RW44 58-6BC44


3RW44 66-6BC44

Ambient temperature 40 °C						Ambient temperature 50 °C					DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Rated operational current I_e [1]	Rated power of induction motors for rated operational voltage U_e					Rated operational current I_e	Rated power of induction motors for rated operational voltage U_e										
	230 V	400 V	500 V	690 V	1000 V		200 V	230 V	460 V	575 V							
A	kW	kW	kW	kW	kW	A	hp	hp	hp	hp							kg
Inside-delta circuits, rated operational voltage 200 ... 460 V [2]																	
50	15	**22**	--	--	--	45	10	15	**30**	--	▶	**3RW44 22-□BC□4**		1	1 unit	131	6.500
62	18.5	**30**	--	--	--	55	15	20	**40**	--	▶	**3RW44 23-□BC□4**		1	1 unit	131	6.500
81	22	**45**	--	--	--	73	20	25	**50**	--	▶	**3RW44 24-□BC□4**		1	1 unit	131	6.500
99	30	**55**	--	--	--	88	25	30	**60**	--	▶	**3RW44 25-□BC□4**		1	1 unit	131	6.500
133	37	**75**	--	--	--	118	30	40	**75**	--	▶	**3RW44 26-□BC□4**		1	1 unit	131	6.500
161	45	**90**	--	--	--	142	40	50	**100**	--	▶	**3RW44 27-□BC□4**		1	1 unit	131	6.500
Order No. supplement for connection types																	
• With spring-type terminals												**3**					
• With screw terminals												**1**					
196	55	**110**	--	--	--	173	50	60	**125**	--	B	**3RW44 34-□BC□4**		1	1 unit	131	7.900
232	75	**132**	--	--	--	203	60	75	**150**	--	B	**3RW44 35-□BC□4**		1	1 unit	131	7.900
281	90	**160**	--	--	--	251	75	100	**200**	--	B	**3RW44 36-□BC□4**		1	1 unit	131	7.900
352	110	**200**	--	--	--	312	100	125	**250**	--	B	**3RW44 43-□BC□4**		1	1 unit	131	11.500
433	132	**250**	--	--	--	372	125	150	**300**	--	B	**3RW44 44-□BC□4**		1	1 unit	131	11.500
542	160	**315**	--	--	--	485	150	200	**400**	--	B	**3RW44 45-□BC□4**		1	1 unit	131	11.500
617	200	**355**	--	--	--	546	150	200	**450**	--	B	**3RW44 46-□BC□4**		1	1 unit	131	11.500
748	250	**400**	--	--	--	667	200	250	**600**	--	B	**3RW44 47-□BC□4**		1	1 unit	131	11.500
954	315	**560**	--	--	--	856	300	350	**750**	--	C	**3RW44 53-□BC□4**		1	1 unit	131	50.000
1065	355	**630**	--	--	--	954	350	400	**850**	--	C	**3RW44 54-□BC□4**		1	1 unit	131	50.000
1200	400	**710**	--	--	--	1065	350	450	**950**	--	C	**3RW44 55-□BC□4**		1	1 unit	131	50.000
1351	450	**800**	--	--	--	1200	450	500	**1050**	--	C	**3RW44 56-□BC□4**		1	1 unit	131	50.000
1524	500	**900**	--	--	--	1351	450	600	**1200**	--	C	**3RW44 57-□BC□4**		1	1 unit	131	50.000
1680	560	**1000**	--	--	--	1472	550	650	**1300**	--	C	**3RW44 58-□BC□4**		1	1 unit	131	50.000
1864	630	**1100**	--	--	--	1680	650	750	**1500**	--	C	**3RW44 65-□BC□4**		1	1 unit	131	78.000
2103	710	**1200**	--	--	--	1864	700	850	**1700**	--	C	**3RW44 66-□BC□4**		1	1 unit	131	78.000
Order No. supplement for connection types																	
• With spring-type terminals												**2**					
• With screw terminals												**6**					
Order No. supplement for the rated control supply voltage U_s [3]																	
• 115 V AC												**3**					
• 230 V AC												**4**					

1) In the selection table, the unit rated current I_e refers to the induction motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

2) 3RW44 2. ... 3RW44 4. soft starters with screw terminals: delivery times ▶ (preferred type),

3) Control by way of the internal 24 V DC supply and direct control by means of PLC possible.

Note:
Soft starter selection depends on the rated motor current.

The 3RW44 solid-state soft starters are designed for normal starting (Class 10). (Inertia load of the overall operating mechanism $J_{Load} < 10 \times J_{Motor}$; starting current 350 % x I_e for 20 s similar load). For any other conditions of use, the devices should be selected using the Win-Soft Starter selection and simulation program. See Technical specifications for information about rated currents for ambient temperatures > 40 °C and switching frequency.

*** You can order this quantity or a multiple thereof.**

3RW44
for high-feature applications

Ambient temperature 40 °C						Ambient temperature 50 °C					DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
Rated operational current I_e [1]	Rated power of induction motors for rated operational voltage U_e					Rated operational current I_e	Rated power of induction motors for rated operational voltage U_e										
	230 V	400 V	500 V	690 V	1000 V		200 V	230 V	460 V	575 V							
A	kW	kW	kW	kW	kW	A	hp	hp	hp	hp							kg
Inside-delta circuits, rated operational voltage 400 ... 600 V [2]																	
50	--	22	**30**	--	--	45	--	--	30	**40**	A	**3RW44 22-□BC□5**		1	1 unit	131	6.500
62	--	30	**37**	--	--	55	--	--	40	**50**	A	**3RW44 23-□BC□5**		1	1 unit	131	6.500
81	--	45	**45**	--	--	73	--	--	50	**60**	A	**3RW44 24-□BC□5**		1	1 unit	131	6.500
99	--	55	**55**	--	--	88	--	--	60	**75**	A	**3RW44 25-□BC□5**		1	1 unit	131	6.500
133	--	75	**90**	--	--	118	--	--	75	**100**	A	**3RW44 26-□BC□5**		1	1 unit	131	6.500
161	--	90	**110**	--	--	142	--	--	100	**125**	A	**3RW44 27-□BC□5**		1	1 unit	131	6.500
Order No. supplement for connection types																	
• With spring-type terminals												**3**					
• With screw terminals												**1**					
196	--	110	**132**	--	--	173	--	--	125	**150**	B	**3RW44 34-□BC□5**		1	1 unit	131	7.900
232	--	132	**160**	--	--	203	--	--	150	**200**	B	**3RW44 35-□BC□5**		1	1 unit	131	7.900
281	--	160	**200**	--	--	251	--	--	200	**250**	B	**3RW44 36-□BC□5**		1	1 unit	131	7.900
352	--	200	**250**	--	--	312	--	--	250	**300**	B	**3RW44 43-□BC□5**		1	1 unit	131	11.500
433	--	250	**315**	--	--	372	--	--	300	**350**	B	**3RW44 44-□BC□5**		1	1 unit	131	11.500
542	--	315	**355**	--	--	485	--	--	400	**500**	B	**3RW44 45-□BC□5**		1	1 unit	131	11.500
617	--	355	**450**	--	--	546	--	--	450	**600**	B	**3RW44 46-□BC□5**		1	1 unit	131	11.500
748	--	400	**500**	--	--	667	--	--	600	**750**	B	**3RW44 47-□BC□5**		1	1 unit	131	11.500
954	--	560	**630**	--	--	856	--	--	750	**950**	C	**3RW44 53-□BC□5**		1	1 unit	131	50.000
1065	--	630	**710**	--	--	954	--	--	850	**1050**	C	**3RW44 54-□BC□5**		1	1 unit	131	50.000
1200	--	710	**800**	--	--	1065	--	--	950	**1200**	C	**3RW44 55-□BC□5**		1	1 unit	131	50.000
1351	--	800	**900**	--	--	1200	--	--	1050	**1350**	C	**3RW44 56-□BC□5**		1	1 unit	131	50.000
1524	--	900	**1000**	--	--	1351	--	--	1200	**1500**	C	**3RW44 57-□BC□5**		1	1 unit	131	50.000
1680	--	1000	**1200**	--	--	1472	--	--	1300	**1650**	C	**3RW44 58-□BC□5**		1	1 unit	131	50.000
1864	--	1100	**1350**	--	--	1680	--	--	1500	**1900**	C	**3RW44 65-□BC□5**		1	1 unit	131	78.000
2103	--	1200	**1500**	--	--	1864	--	--	1700	**2100**	C	**3RW44 66-□BC□5**		1	1 unit	131	78.000
Order No. supplement for connection types																	
• With spring-type terminals												**2**					
• With screw terminals												**6**					
Order No. supplement for the rated control supply voltage U_s [3]																	
• 115 V AC												**3**					
• 230 V AC												**4**					

[1] In the selection table, the unit rated current I_e refers to the induction motor's rated operational current in the inside-delta circuit. The actual current of the device is approx. 58 % of this value.

[2] Soft starter with screw terminals:
3RW44 2. ... 3RW44 4. Delivery time A
3RW44 5. ... 3RW44 6. Delivery time B.

[3] Control by way of the internal 24 V DC supply and direct control by means of PLC possible.

Note:
Soft starter selection depends on the rated motor current.

The 3RW44 solid-state soft starters are designed for normal starting (Class 10). (Inertia load of the overall operating mechanism $J_{Load} < 10 \times J_{Motor}$; starting current 350 % x I_e for 20 s similar load). For any other conditions of use, the devices should be selected using the Win-Soft Starter selection and simulation program. See Technical specifications for information about rated currents for ambient temperatures > 40 °C and switching frequency.

* You can order this quantity or a multiple thereof.

Accessories

	For soft starters / Type	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Soft Starter ES 2007 PC communication programs[2]									
		**Soft Starter ES 2007 Basic** Floating license for one user E-SW, software and documentation on CD, 3 languages (English/French/German), communication through system interface							
		• License key on USB stick, Class A, including CD	B	**3ZS1 313-4CC10-0YA5**		1	1 unit	131	0.230
		Soft Starter ES 2007 Standard Floating license for one user E-SW, software and documentation on CD, 3 languages (English/French/German), communication through system interface							
		• License key on USB stick, Class A, including CD	B	**3ZS1 313-5CC10-0YA5**		1	1 unit	131	0.230
		Soft Starter ES 2007 Premium Floating license for one user E-SW, software and documentation on CD, 3 languages (English/French/German), communication through system interface or PROFIBUS							
		• License key on USB stick, Class A, including CD	B	**3ZS1 313-6CC10-0YA5**		1	1 unit	131	0.230
PC cables									
 3UF7 940-0AA00-0		**For PC/PG communication with SIRIUS 3RW44 soft starters** Through the system interface, for connecting to the serial interface of the PC/PG	A	**3UF7 940-0AA00-0**		1	1 unit	131	0.150
USB/serial adapters									
		For connecting the PC cable to the USB interface of a PC We recommend, in conjunction with 3RW44 soft starter, using SIMOCODE pro 3UF7, 3RK3 modular safety system, ET 200S/ECOFAST/ET 200pro motor starters, AS-i safety monitor, AS-i analyzer	B	**3UF7 946-0AA00-0**		1	1 unit	131	0.150
PROFIBUS communication modules									
 3RW49 00-0KC00		Modules can be plugged into the soft starters for integrating the starters in the PROFIBUS network with DPV1 slave functionality. On Y-link the soft starter has only DPV0 slave functionality.	A	**3RW49 00-0KC00**		1	1 unit	131	0.320
External display and operator modules									
 3RW49 00-0AC00		For indicating and operating the functions provided by the soft starter using an externally mounted display and operator module in degree of protection IP54 (e. g. in the control cabinet door)	▶	**3RW49 00-0AC00**		1	1 unit	131	0.320
		Connection cables From the device interface (serial) of the 3RW44 soft starter to the external display and operator module							
		• Length 0.5 m, flat	A	**3UF7 932-0AA00-0**		1	1 unit	131	0.020
		• Length 0.5 m, round	A	**3UF7 932-0BA00-0**		1	1 unit	131	0.050
		• Length 1.0 m, round	A	**3UF7 937-0BA00-0**		1	1 unit	131	0.100
		• Length 2.5 m, round	A	**3UF7 933-0BA00-0**		1	1 unit	131	0.150
Box terminal blocks for soft starters									
 3RT19		**Box terminal blocks**							
	3RW44 2.	Included in the scope of supply							
	3RW44 3.	• Up to 70 mm^2	▶	**3RT19 55-4G**		1	1 unit	101	0.230
		• Up to 120 mm^2	▶	**3RT19 56-4G**		1	1 unit	101	0.260
	3RW44 4.	• Up to 240 mm^2	▶	**3RT19 66-4G**		1	1 unit	101	0.676

* You can order this quantity or a multiple thereof.

3RW44
for high-feature applications

	For soft starters	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Type								kg
Covers for soft starters									
	Terminal covers for box terminals								
	Additional touch protection to be fitted at the box terminals (2 units required per device)								
	3RW44 2. and 3RW44 3.		►	**3RT19 56-4EA2**		1	1 unit	101	0.030
	3RW44 4.		►	**3RT19 66-4EA2**		1	1 unit	101	0.040
 3RT19 .6-4EA1	**Terminal covers for cable lugs and busbar connections**								
	3RW44 2. and 3RW44 3.		►	**3RT19 56-4EA1**		1	1 unit	101	0.070
	3RW44 4.		►	**3RT19 66-4EA1**		1	1 unit	101	0.130
Operating instructions[1]									
	For 3RW44 soft starters			**3ZX10 12-0RW44-1AA1**					

[1] The operating instructions are included in the scope of supply.

[2] For more information on the Soft Starter ES software see Chapter 12 "Planning and Configuration with SIRIUS".

Spare parts

	For soft starters	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	Type								kg
Fans									
 3RW49	**Fans**								
	3RW44 2. and 3RW44 3.	115 V AC	►	**3RW49 36-8VX30**		1	1 unit	131	0.300
		230 V AC	►	**3RW49 36-8VX40**		1	1 unit	131	0.300
	3RW44 4.	115 V AC	►	**3RW49 47-8VX30**		1	1 unit	131	0.500
		230 V AC	►	**3RW49 47-8VX40**		1	1 unit	131	0.500
	3RW44 5. and 3RW44 6.[1]	115 V AC	►	**3RW49 57-8VX30**		1	1 unit	131	0.800
		230 V AC	►	**3RW49 57-8VX40**		1	1 unit	131	0.800
	3RW44 6.[2]	115 V AC	►	**3RW49 66-8VX30**		1	1 unit	131	0.300
		230 V AC	►	**3RW49 66-8VX40**		1	1 unit	131	0.300

[1] 3RW44 6. mounting on output side.

[2] For mounting on front side.

* You can order this quantity or a multiple thereof.

More information

Application examples for normal starting (Class 10)

Normal starting Class 10 (up to 20 s with 350 % $I_{n\ motor}$),
The soft starter rating can be selected to be as high as the rating of the motor used.

Application		Conveyor belt	Roller conveyor	Compressor	Small fan	Pump	Hydraulic pump
Starting parameters							
• Voltage ramp and current limiting							
- Starting voltage	%	70	60	50	30	30	30
- Starting time	s	10	10	10	10	10	10
- Current limit value		Deactivated	Deactivated	4 x I_M	4 x I_M	Deactivated	Deactivated
• Torque ramp							
- Starting torque		60	50	40	20	10	10
- End torque		150	150	150	150	150	150
- Starting time		10	10	10	10	10	10
• Breakaway pulse		Deactivated (0 ms)	Deactivated (0 ms)	Deactivated (0 ms)	Deactivated (0 ms)	Deactivated (0 ms)	Deactivated (0 ms)
Ramp-down mode		Smooth ramp-down	Smooth ramp-down	Free ramp-down	Free ramp-down	Pump ramp-down	Free ramp-down

Application examples for heavy starting (Class 20)

Heavy starting Class 20 (up to 40 s with 350 % $I_{n\ motor}$),
The soft starter has to be selected one rating class higher than the motor used.

Application		Stirrer	Centrifuge	Milling machine
Starting parameters				
• Voltage ramp and current limiting				
- Starting voltage	%	30	30	30
- Starting time	s	30	30	30
- Current limit value		4 x I_M	4 x I_M	4 x I_M
• Torque ramp				
- Starting torque		30	30	30
- End torque		150	150	150
- Starting time		30	30	30
• Breakaway pulse		Deactivated (0 ms)	Deactivated (0 ms)	Deactivated (0 ms)
Ramp-down mode		Free ramp-down	Free ramp-down	Free ramp-down or DC braking

Application examples for very heavy starting (Class 30)

Very heavy starting Class 30 (up to 60 s with 350 % $I_{n\ motor}$),
The soft starter has to be selected two rating classes higher than the motor used.

Application		Large fan	Mill	Breakers	Circular saw/bandsaw
Starting parameters					
• Voltage ramp and current limiting					
- Starting voltage	%	30	50	50	30
- Starting time	s	60	60	60	60
- Current limit value		4 x I_M	4 x I_M	4 x I_M	4 x I_M
• Torque ramp					
- Starting torque		20	50	50	20
- End torque		150	150	150	150
- Starting time		60	60	60	60
• Breakaway pulse		Deactivated (0 ms)	80 %, 300 ms	80 %, 300 ms	Deactivated (0 ms)
Ramp-down mode		Free ramp-down	Free ramp-down	Free ramp-down	Free ramp-down

Note:
These tables present sample set values and device sizes. They are intended only for the purposes of information and are not binding. The set values depend on the application in question and must be optimized during start-up.
The soft starter dimensions should be checked where necessary with the Win-Soft Starter software or with the help of Technical Assistance.

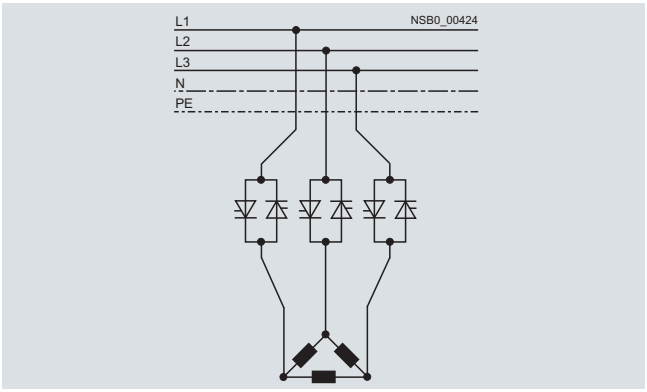
3RW44
for high-feature applications

Circuit concept

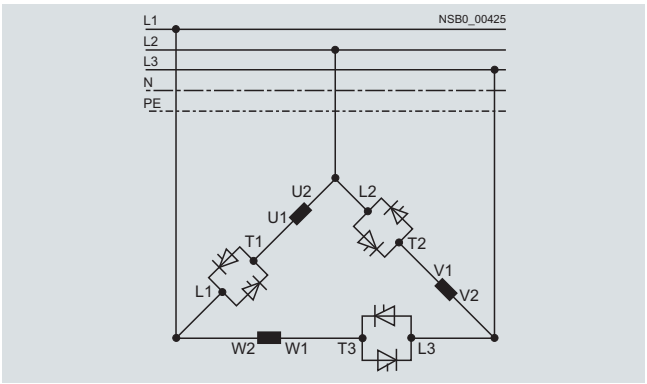
The SIRIUS 3RW44 soft starters can be operated in two different types of circuit.

- Inline circuit
  The controls for isolating and protecting the motor are simply connected in series with the soft starter. The motor is connected to the soft starter with three cables.
- Inside-delta circuit
  The wiring is similar to that of wye-delta starters. The phases of the soft starter are connected in series with the individual motor windings. The soft starter then only has to carry the phase current, amounting to about 58 % of the rated motor current (conductor current).

Comparison of the types of circuit



Inline circuit:
Rated current I_e corresponds to the rated motor current I_n,
3 cables to the motor



Inside-delta circuit:
Rated current I_e corresponds to approx. 58 % of the rated motor current I_n, 6 cables to the motor (as with wye-delta starters)

Which circuit?

Using the inline circuit involves the lowest wiring outlay. If the soft starter to motor connections are long, this circuit is preferable. With the inside-delta circuit there is double the wiring complexity but a smaller size of device can be used at the same rating.

Thanks to the choice of operating mode between the inline circuit and inside-delta circuit, it is always possible to select the most favorable solution.

The braking function is possible only in the inline circuit.

Configuration

The 3RW44 solid-state soft starters are designed for normal starting. In case of heavy starting or increased starting frequency, a larger device must be selected.

For long starting times it is recommended to have a PTC sensor in the motor. This also applies for the ramp-down modes smooth ramp-down, pump ramp-down and DC braking, because during the ramp-down time in these modes, an additional current loading applies in contrast to free ramp-down.

In the motor feeder between the SIRIUS 3RW soft starter and the motor, no capacitive elements are permitted (e. g. no reactive-power compensation equipment). In addition, neither static systems for reactive-power compensation nor dynamic PFC (Power Factor Correction) must be operated in parallel during starting and ramp-down of the soft starter. This is important to prevent faults arising on the compensation equipment and/or the soft starter.

All elements of the main circuit (such as fuses and controls) should be dimensioned for direct starting, following the local short-circuit conditions. Fuses, controls and overload relays must be ordered separately.

A bypass contact system and solid-state overload relay are already integrated in the 3RW44 soft starter and therefore do not have to be ordered separately.

The harmonic component load for starting currents must be taken into consideration for the selection of motor starter protectors (selection of release).

Note:
When induction motors are switched on, voltage drops normally appear on starters of all types (direct starters, wye-delta starters, soft starters). The infeed transformer must always be dimensioned such that the voltage dip when starting the motor remains within the permissible tolerance. If the infeed transformer is dimensioned with only a small margin, it is best for the control voltage to be supplied from a separate circuit (independently of the main voltage) in order to avoid the potential switching off of the soft starter.

Device interface, PROFIBUS DP communication module, Soft Starter ES parameterizing and operating software

The 3RW44 electronic soft starters have a PC interface for communicating with the Soft Starter ES software or for connecting the external display and operator module. If the optional PROFIBUS communication module is used, the 3RW44 soft starter can be integrated in the PROFIBUS network and communicate using the GSD file or Soft Starter ES Premium software.

Manual for SIRIUS 3RW44

Besides containing all important information on configuring, commissioning and servicing, the manual also contains example circuits and the technical specifications for all devices.

Win-Soft Starter selection and simulation program

With this software, you can simulate and select all Siemens soft starters, taking into account various parameters such as mains properties, motor and load data, and special application requirements.

The software is a valuable tool, which makes complicated, lengthy manual calculations for determining the required soft starters superfluous.

The Win-Soft Starter selection and simulation program can be downloaded from:
http://www.siemens.com/softstarter > Software

More information can be found on the Internet at:
http://www.siemens.com/softstarter

SIRIUS soft starter training course (SD-SIRIUSO)

Siemens offers a 2-day training course on the SIRIUS solid-state soft starters to keep customers and own personnel up-to-date on configuring, commissioning and servicing issues.

Please direct enquiries and applications to:

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